USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Title: Clark Fork River Restoration Symposium

Focus Categories: M&P, COV, EDU

Keywords: River restoration planning and coordination

Project Duration: March 1, 2000 - February 28, 2001

Federal funding requested: $5000

Nonfederal (matching): $15114

Principal Investigator:

Dr. Vicki Watson, University of Montana

Congressional District: Montana At Large

Statement of Critical Regional Problems

The Clark Fork River basin of Western Montana and northern Idaho suffers from many of the land and water use problems associated with western rivers—impacts from irrigation, grazing, mining, forestry and urban development. In the early 1980's, the country's largest Superfund complex was designated in the upper river where historic mining and smelting practices introduced toxic metals and acidity. Remediation and restoration efforts are expected to take decades. Nuisance algae problems were recognized in the mid 1980's, resulting in listing parts of the river as impaired by nutrients. A group of stakeholders developed a voluntary nutrient reduction plan which was accepted by the EPA as a TMDL, beginning a 10-year implementation process. The river's native fisheries are well below potential, due to habitat degradation and fragmentation and the introduction of exotics. Ongoing fishery restoration efforts will likely intensify with the recent listing of the bull trout as endangered. Hydropower dams on the river are completing the relicensing process, with large mitigation packages to be implemented. In addition to these mammoth efforts, many smaller restoration projects are being undertaken by local government, watershed groups, and private landowners throughout the basin. All told, hundreds of millions of dollars will be spent over the next few decades in efforts to restore the health of this river.

How can these restoration efforts best be designed and coordinated so as to achieve the most restoration of integrity for the least economic and social costs? Are there potential conflicts between these efforts? What opportunities for multiple benefits might be missed

through lack of coordination? What visions should guide and motivate restoration efforts? These questions have been raised by agency decision makers and scientists, by watershed groups and basin citizens.

Statement of Results or Benefits

The above questions will be explored by the 4th Clark Fork River Symposium to be held in April, 2000 near the center of the river basin (Missoula, MT). Earlier symposia on the river occurred in 1985, 1990, and 1995. These symposia were well attended and produced valued proceedings. The year 2000 symposium will provide: a State of the River assessment, a forum for reporting on restoration research and projects, and clarification of goals and objectives of diverse restoration efforts in the basin. Hopefully, the symposium will also kick off a year-long effort to increase communication between scientists, decision makers and citizen groups working on various restoration efforts in the basin (co-sponsors are seeking foundation funding for this effort). The symposium proceedings will be published in hard copy and online, will be designed to be accessible to the interested public, and will be widely distributed. University students focussing on river and watershed restoration will gain valuable experience while assisting with this effort.

The PI and other scientists collaborating on the symposium plan to apply for additional support for restoration planning efforts to the new restoration project fund being established with the Clark Fork River Natural Resource Damage settlement funds. However, the first projects funded under that effort will not receive funds until 2001. Water Center funding for the Clark Fork Restoration Symposium will make it possible to begin the planning process in 2000, and to provide early direction to selection and coordination of projects under that effort.

Nature, Scope and Objectives of the Project

The Clark Fork River basin covers much of western Montana and includes wilderness areas and fabled trout streams like the Blackfoot River, Bitterroot River, and Rock Creek. But it also includes rapidly growing towns and a large pulp mill, several hydroelectric reservoirs and the country's largest superfund complex. The river has been dramatically changed by channel modification, diversion of flows, introduction of exotic species, and land uses such as mining, grazing, timber harvest and urban development. Most historic damage occurred as a result of inadequate understanding of the river's limited capacity to provide human services while maintaining integrity. As our understanding of river and watershed science has grown, the basin's human community has attempted to mitigate the impacts of its demands even as those demands continue to grow. In the past two decades, conservation and restoration efforts have intensified, and four major restoration initiatives are being undertaken.

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Remediation and restoration efforts are expected to take decades. Nuisance algae problems were recognized in the mid 1980's, precipitating a 10-year, 3-state study that resulted in listing parts of the river as impaired by nutrients. A group of stakeholders developed a voluntary nutrient reduction plan which was accepted by the EPA as a TMDL, beginning a 10-year implementation process. The river's native fisheries are well below potential, due to habitat degradation and fragmentation and the introduction of exotics. The bull trout was recently listed as endangered while the cutthroat is being considered for listing. A recovery plan for the bull trout, if effectively implemented, would likely benefit many other species. Hydropower dams on the river are completing the relicensing process and have large mitigation packages to be implemented. In addition, local government, watershed groups and private landowners are undertaking projects to restore and protect streams, floodplains, and aquifers throughout the basin. All told, hundreds of millions of dollars will be spent over the next few decades in efforts to restore the health of this river.

How can these restoration efforts best be designed and coordinated so as to achieve the most restoration of integrity for the least economic and social costs? Are there potential conflicts between these efforts? What opportunities for multiple benefits might be missed through lack of coordination? These questions will be explored by the 4th Clark Fork River Symposium. Earlier symposia on the river occurred in 1985, 1990, and 1995. These symposia were well attended and produced valued proceedings. The year 2000 symposium will provide: a State of the River assessment, a forum for reporting on restoration research and projects, clarification of goals and objectives of diverse restoration efforts in the basin. Hopefully, the symposium will kick off a year-long effort to increase communication between scientists, decision makers and citizens working on restoration efforts, depending on other funding.

The symposium and its published proceedings are intended to address the following objectives:

1) Provide a State of the River assessment based on data supplied by government agencies and NGO's and synthesized into a GIS data base.

2) Clarify the goals and objectives of each of the major restoration initiatives with respect to the overall health of the river system;

3) Identify areas of potential conflicts between the various efforts and potential opportunities for actions that will benefit more than one effort;

4) Provide a forum for sharing experiences on river restoration science and projects between government scientists, consultants, watershed groups and other interested citizens.

The funding requested in this proposal is intended to cover some of the costs of the symposium and proceedings. A modest registration fee will cover other symposium costs, and cosponsors will bear much of the cost of planning, promoting and developing

presentations for the symposium. Cosponsors are also pursuing foundation funding to cover costs of planned post symposium follow-up activities. These would include informational workshops for watershed groups and a working group of scientists and other citizens that will endeavor to develop a restoration vision document for the basin that includes an overall monitoring plan and research agenda that will guide restoration efforts over the long term.

Methods, Procedure and Facilities

The 2000 symposium will attempt to add focussed policy discussions to the traditional technical presentations of past symposia. The symposium will begin with a State of the River address, synthesizing information on the status of water quality, biological communities and other indicators in the basin. (This information will be synthesized into a user friendly GIS data base by the PI and graduate assistants in cooperation with several state agencies and NGO's that have agreed to assist with this). Next, invited speakers will present each of the 4 restoration initiatives (their guiding visions and objectives and key projects). Then a panel of local scientists and river activists will provide critiques and recommendations on these restoration plans. Studies and reports on watershed problems and projects addressing these problems will be presented in poster sessions by agencies, watershed groups and others. Finally, a series of working groups will be convened to discuss potential projects, monitoring plans, and coordination schemes for restoration initiatives. (Depending on funding from foundations being sought by co-sponsors, these groups will hopefully hold additional meetings and field trips over the summer and produce a Clark Fork restoration guidance document).

A symposium proceedings will be published in hard copy and online, consisting of presented papers (both oral and poster papers), working groups reports and other papers on restoration efforts in the basin. The online proceedings will make it possible to present posters much more effectively. The PI will serve as organizer of the symposium and as editor of the proceedings. University graduate students focussing on river restoration will assist with producing the State of the River address, organizing meetings, and with editing and producing the proceedings.

The symposium will be held on the University of Montana campus in April, 2000. The Geological Society of America, Rocky Mountain Section, will meet in Missoula at almost the same time, and it should be possible to share some field trips and have some cross participation. Presented papers would be due at the symposium. Presented papers will be peer-reviewed over the summer, revised in fall if need be. First draft of working group reports would be due by early summer. If co-sponsors are successful in obtaining foundation funding, these working groups will continue to meet and go on field trips in the summer and revise their reports in the fall. Symposium proceedings would be published online by December, 2000, and in hard copy in early 2001.

Related Research

Watershed restoration science is in its infancy but growing fast. Much of the published work in this field focuses on the Pacific and Inland Northwest (Frissell and Ralph 1999), and some of the best is right here in the Clark Fork basin (Aiken 1997).Watershed restoration must be understood and attacked on several scales (Ziemer 1997). We must plan and coordinate regionally while acting largely locally. Watershed restoration requires a long term commitment by local communities. For efforts to be sustained, they must address local concerns. But without the larger-scale context, local restoration efforts are often 'the wrong design and wrong size in the wrong location at the wrong time.' (Ziemer 1997). In fact, actions labeled as 'restoration' can be counterproductive when pursued without this larger vision (Frissell 1997) and often just move a problem downstream in space or time. A wide consensus of watershed scientists holds that, to be successful, watershed restoration requires clearly stated goals for the watershed based on the region's actual potential (Naiman et al 1992), planning based on watershed analysis (FEMAT 1993), and adaptive management tied to a scientifically rigorous monitoring program (Kershner 1997, Bauer and Ralph 1999). This is especially true where multiple problems are to be addressed by multiple actions (Reid 1999). The Clark Fork 's several restoration initiatives lack such a coordinated vision and monitoring program. Symposium presenters and working groups will be charged with addressing these issues specifically and with providing recommendations to those directing the restoration initiatives in a language understandable to the interested public.

The symposium is intended to provide an opportunity for sharing some basic restoration science (e.g., Kondolf and Larsen 1995) , innovative restoration ideas (e.g., Richards et al 1992), and experience with actual restoration projects in the basin --much of which has not yet been published (eg., Pierce and Schmetterling 1999) or is only now appearing in journals (Schmetterling and Pierce, 1999). Sharing information and experience between watershed professionals and citizen groups is valuable in maintaining the energy of the groups and in focussing their efforts on meaningful restoration actions (Hagen et al 1999, Council of State Governments 1998). A wealth of restoration information is now available, such as, the Stream Corridor Restoration Manual developed by 15 federal agencies (available on line at www.usda.gov/stream_restoration) and many guidance documents developed by state agencies, universities and private groups. The Symposium provides an opportunity to make some of the best of these more visible to citizens who may be overwhelmed by the sheer number and volume of sources.

The symposium and follow-up working group meetings will begin development of a restoration guidance document for the Clark Fork similar to Trout Unlimited's fisheries-oriented restoration framework for the upper river (Workman, et al 1999), but that expands this idea to more of the basin and to more of its values and services.

References for Related Research

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Information Transfer Plan

1) Subject matter and problem to be addressed—The Clark Fork Restoration Symposium will address the state of the river's health (given its multiple problems), the goals and need for coordination of its major restoration initiatives, the status of current restoration efforts, and will begin some planning and coordination of future efforts.

2) The target audience includes the decision makers managing the large restoration initiatives, all land and water managers in the basin, including government agencies, watershed groups and other interested citizens.

3) Strategies for Info Transfer – The symposium will be widely advertised by its many co-sponsors (see 4 below). Its proceedings will be available online, and hard copies will be supplied to all the basin's major city libraries as well as the State Library in Helena, the Water Center, and all university and college libraries. Participants will be urged to keep all presentations accessible to interested citizens, and editors will strive to make the proceedings understandable to them as well.

4) Cooperators – All cosponsors will notify their members and served groups through their web sites, newsletters, meetings, etc, of the symposium and availability of the proceedings. UM University Relations will issue press releases to state media.

Groups or individuals that have agreed to cosponsor and participate in the symposium include:

Tri-State Water Quality Council, Clark Fork-Pend Oreille Coalition, Montana Trout Unlimited,

Upper Clark Fork River Basin Steering Committee, Cabinet Resource Group,

Missoula Water Quality District and Advisory Council, Montana Academy of Science,

Montana Environmental Education Association, Montana Natural History Center,

Interfluve, Land & Water Consulting,

members of Montana DEQ, DNRC, DFWP and the Montana State Library.

Participants/cosponsors of past Clark Fork River symposia that will likely participate again include: other watershed groups, cities & counties of the basin, conservation districts, consultants, industries, power companies, and other state and federal agencies.